

ABSTRACT OF THE DISCLOSURE

The invention includes a thin film optical coating having a layer comprising sol-gel derived niobium oxide which is capable of providing an index of refraction of at least about 1.90. The invention also includes a thin film optical coating having a layer comprising a sol-gel derived oxide system including niobium oxide and a second oxide component such as aluminum oxide and/or silicon oxide which is capable of providing an index of refraction of from about 1.60 to about 1.90. Also included in the present invention are processes for producing such thin film coatings. In the processes, a substrate is immersed in a mixture comprising niobium chloride and an alcohol, withdrawn from the mixture, and heat-treated. The mixture may also include aluminum precursors and/or silicon precursors. The heat-treatment may occur at various temperatures, including those under 200° C.

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